

FORM PTO-1390 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER: GR 98 P 1061 U.S. APPLN NO. (if known, see 37 CFR 1.5) <div style="font-size: 1.5em; font-weight: bold;">09/600910</div>
INTERNATIONAL APPLICATION NO.: PCT/DE99/00159	INTERNATIONAL FILING DATE: 22 January 1999	PRIORITY DATE CLAIMED: 23 January 1998
TITLE OF INVENTION: METHOD FOR DIGITAL DATA TRANSMISSION WITH A VARIABLE BANDWIDTH		
APPLICANT(S) FOR DO/EO/US: Thomas WERNER and Claudia SCHIERBLING		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. <input checked="" type="checkbox"/>	This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.	
2. <input type="checkbox"/>	This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.	
3. <input checked="" type="checkbox"/>	This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).	
4. <input checked="" type="checkbox"/>	A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.	
5. <input checked="" type="checkbox"/>	A copy of the International Application as filed (35 U.S.C. 371(c)(2))	
a. <input checked="" type="checkbox"/>	is transmitted herewith (required only if not transmitted by the International Bureau).	
b. <input checked="" type="checkbox"/>	has been transmitted by the International Bureau. (see attached copy of PCT/IB/308)	
c. <input type="checkbox"/>	is not required, as the application was filed in the United States Receiving Office (RO/US).	
6. <input checked="" type="checkbox"/>	A translation of the International Application into English (35 U.S.C. 371(c)(2)).	
7. <input type="checkbox"/>	Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).	
a. <input type="checkbox"/>	are transmitted herewith (required only if not transmitted by the International Bureau).	
b. <input type="checkbox"/>	have been transmitted by the International Bureau.	
c. <input type="checkbox"/>	have not been made; however, the time limit for making such amendments has NOT expired.	
d. <input type="checkbox"/>	have not been made and will not be made.	
8. <input type="checkbox"/>	A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).	
9. <input type="checkbox"/>	An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).	
10. <input type="checkbox"/>	A translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).	
Item 11. to 16. below concern document(s) or information included:		
11. <input checked="" type="checkbox"/>	An Information Disclosure Statement under 37 CFR 1.97 and 1.98.	
12. <input type="checkbox"/>	An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.	
13. <input checked="" type="checkbox"/>	A FIRST preliminary amendment.	
<input type="checkbox"/>	A SECOND or SUBSEQUENT preliminary amendment.	
14. <input type="checkbox"/>	A substitute specification.	
15. <input type="checkbox"/>	A change of power of attorney and/or address letter.	
16. <input checked="" type="checkbox"/>	Other items or information: <div style="margin-left: 20px;"> International Preliminary Examination Report (PCT/IPEA/409) International Search Report (PCT/ISA/210) Patent Data Entry Sheet PCT Request (PCT/RO/101) and specification as filed Cover page of the International Publication </div>	

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)		INTERNATIONAL APPLICATION NO. PCT/DE99/00159		ATTORNEY'S DOCKET NO. GR 98 P 1061	
09/600910				CALCULATIONS PTO USE ONLY	
17. <input checked="" type="checkbox"/> The following fees are submitted:					
BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):					
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$ 970.00					
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$ 840.00					
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 690.00					
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$ 670.00					
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$ 96.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =					
Surcharge of \$130.00 for furnishing the oath or declaration later than 30 months from the earliest claimed priority date (37 CFR 1.492(e)).					
				\$ 130.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	5 - 20 =	0	X \$18.00	\$	
Independent claims	1 - 3 =	0	X \$78.00	\$	
MULTIPLE DEPENDENT CLAIMS(S) (if applicable)			+ \$260.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 970.00	
Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				\$	
SUBTOTAL =				\$ 970.00	
Processing fee of \$130 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.49(f)).				\$	
TOTAL NATIONAL FEE =				\$ 970.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	
TOTAL FEES ENCLOSED =				\$ 970.00	
				Amount to be refunded:	
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a.	<input checked="" type="checkbox"/>	A check in the amount of \$ <u>970.00</u> to cover the above fees is enclosed.			
b.	<input type="checkbox"/>	Please charge my Deposit Account No. 25-0120 in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.			
c.	<input checked="" type="checkbox"/>	The Commissioner is hereby authorized to charge any additional fees which may be required by 37 CFR 1.16 and 1.17, or credit any overpayment to Deposit Account No. 25-0120 . A duplicate copy of this sheet is enclosed.			
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
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Customer No. 000466 YOUNG & THOMPSON 745 South 23rd Street 2nd Floor Arlington, VA 22202 (703) 521-2297 facsimile (703) 685-0573			July 24, 2000		
			By <u>Benoît Castel</u> Benoît Castel Attorney for Applicants Registration No. 35,041		

09/600910

534 Rec'd 24 JUL 2000

PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Thomas WERNER et al.

Serial No. (unknown)

Filed herewith

METHOD FOR DIGITAL DATA
TRANSMISSION WITH
A VARIABLE BANDWIDTH

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation of the filing fee, please replace page 3, as originally filed with pages 3 and 3a as filed in the Article 34 amendment of 17 December 1999.

Please substitute Claims 1-6 as originally filed, which appear on pages 11 and 12, with Claims 1-5 also filed in the Article 34 amendment of 17 December 1999. The substitute specification pages and the pages containing Claims 1-5 are marked "AMENDED SHEET" and are attached hereto. Following the insertion of Claims 1-5, please amend these claims as follows:

IN THE CLAIMS:

Claim 3, lines 1 and 2, change "one of the preceding claims," to --claim 1,--.

Claim 5, lines 1 and 2, change "one of the preceding claims," to --claim 1--.

Description

Method for digital data transmission with a variable bandwidth

5

The present invention relates to a method for digital data transmission with a variable bandwidth in a network which has at least one server, a user terminal and a so-called network management system (TMN), the method enabling flexible service-dependent bandwidth control.

The invention uses the so-called ADSL (Asymmetric Digital Subscriber Line) system, which has recently become more and more widespread. The ADSL system is described for example in the documents by Veeneman, Olshansky, GTE Laboratories Incorporated, "ADSL for Video and Data Services", IEEE Communications Conference, 1995, pages 837-841; or Chow, Cioffi, Amati Communications Corporation, "A Multi-drop ADSL Distribution Network", IEEE Communications Conference, 1994, pages 456-460.

In this asymmetric transmission system, the data stream from a user terminal to a server is significantly smaller than the opposite data stream, that is to say the data stream from the server to the user terminal. Typically, the data stream from the user terminal to the server amounts to a few kilobits per second, whereas the data stream from the server to the user terminals may amount to one or more megabits per second (for example 6 megabits/s in the case of standard telephone lines). The upper limit is prescribed in this case by the line conditions. ADSL is therefore particularly suitable for so-called video on demand or WWW applications, in which generally the data to be transmitted from the user terminal to a server are significantly fewer than in the opposite direction.

ADSL uses a modulation scheme in order to transmit data in particular to user terminals of private customers by means of the same twisted copper lines which are also used for ISDN services, for example. As a result, the installation costs for this new system are comparatively low for the network operator. It can therefore be used together with conventional telephone services, but, by contrast, it has the advantages of significantly higher transmission rates, namely about 6 to 8 megabits per second from the server to the user terminal and up to 640 kilobits per second from the user terminal to the server.

An essential property of the ADSL system in comparison with the ISDN system, for example, is that the modems at the user and operator ends have to be physically connected to one another (for example by means of a widely distributed copper line) and cannot simply be present respectively at one end of an interconnected and switched telephone connection. Consequently, one modem must usually be situated at a central distributor of the telephone company operating the ADSL system, and the other modem is correspondingly situated in the user's building. The modem which is connected in the switching station (central distributor) of the telephone company is called ATU-C (ADSL Terminal Unit Central). The modem which is situated at the user's end is called ATU-R (ADSL Terminal Unit Remote).

A further property of the ADSL system is that the bandwidth can be set by the operator. At present, in ADSL systems the bandwidth is set at the operator end in a manner governed by the system, i.e. the bandwidth is determined in accordance with the capabilities of the subscriber line used for transmission. In this method, which is also called rate-adaptive ADSL, the maximum possible bandwidth is set independently by the system. Thus,

bandwidth is always used, which is generally prescribed by the line conditions.

EP 0 806 852 A2 discloses a multimode digital modem for ADSL transmissions. In an initialization method, the two modems involved at both ends of a line carry out a "negotiation method" (Rate Negotiation Method). Each of the modems involved communicates to the respective other modem its possibilities and desires with regard to the data transmission rate to be chosen for a transmission. The data transmission rate actually used during the transmission is then fixed according to an algorithm.

WO96/37069 discloses a video conference and multimedia system. A digital data transmission can be effected with different bandwidths, the currently used bandwidth being displayed.

The object of the present invention is to provide flexible, service-dependent control of the bandwidth in an ADSL system in the case of which the maximum bandwidth governed by the system represents merely the upper limit of the bandwidths that can be chosen.

By virtue of the invention's service-dependent control of the bandwidth in an ADSL system, the operator of the ADSL system is thus afforded various possibilities for service differentiation, resulting in greater possible exploitation of the market and therefore increased profitability for the operator.

According to the invention, the abovementioned object is achieved by means of a method having the features of claim 1.

Thus, the invention provides a method for digital data transmission with a variable bandwidth in a network, the network having at least one server,

at least one user terminal and a network management system. In this case, firstly a connection is established between the user terminal and the server at least partly by means of an ADSL connection (i.e.

5 between the ATU-R at the user's end and the ATU-C at the operator's end). Bandwidth selection data are then transmitted from the user terminal via the ADSL connection to the network management system assigned to the server. The actual transmission of information data

10 from the server to the user terminal via the ADSL connection and/or vice versa can then be effected with a bandwidth corresponding to the previously transmitted bandwidth selection data, in which case, in accordance with a property of the ADSL system, the bandwidth of

15 the transmission from the server to the user terminal is significantly greater

the user terminal is significantly greater (factor of 10 to 100) than that from the user terminal to the server..

By way of example, the bandwidth selection data
5 can be transmitted via the so-called EOC channel (embedded operations channel) of the ADSL connection.

The network management system may communicate billing data to a billing device (Billing System), assigned to the server, in a manner dependent on the
10 bandwidth selection data that have previously been chosen by the user and transmitted to the network management system. In general, the charges calculated by the billing device will be higher, the greater the bandwidth chosen by the user.

Prior to the transmission of the bandwidth
15 selection data to the user terminal, a number of predetermined bandwidths mask that can be selected by the user may be transmitted and displayed for example in the form of a mask on a display device of the user
20 terminal. The maximum bandwidth of the predetermined bandwidths that can be selected may in this case be set automatically in a manner dependent on the system capabilities (in particular the line conditions of the subscriber line used for transmission).

Once the bandwidth selection data have been
25 received, the network management system may transmit setting data to the ATU-C of the ADSL system, it being possible for the ATU-C to forward the setting data to the ATU-R of the ADSL system via the EOC channel of the
30 ADSL system for the purpose of synchronizing the settings.

Further features and properties of the present
invention will become more apparent from the
description of an exemplary embodiment with reference
35 to the accompanying figures of the drawings, in which:

Fig. 1 shows a block diagram which elucidates the performance of the method according to the invention,

Fig. 2 shows the structure of an ADSL (Asymmetric Digital Subscriber Line) system, and

Fig. 3 shows a graphical illustration of the service adaption as a function of the willingness to pay, in accordance with an empirical determination.

Firstly, the basic components of an ADSL system will be explained with reference to Fig. 2. In Fig. 2, the reference symbol 10 designates a central distributor of an operator company, which may contain a plurality of ATU-C 2 of an ADSL system. Data are transmitted to this central distributor 10 in a known manner via a line 7, for example by means of the Internet Protocol or HTTP protocol. Each ATU-C 2 of the ADSL system is physically connected by means of a conventional copper line 12 directly (without changeovers) to an ATU-R 1 situated in a user's building, for example. Since the ADSL requires a direct physical connection between the modem (ATU-C 2) at the operator end and the modem (ATU-R 1) at the user end, it is necessary to provide one ATU-C 2 per user terminal in the central distributor 10.

Since the ADSL system can use conventional telephone lines 12 (copper lines), the modem 1 can simultaneously supply a conventional telephone connection (POTS) 11. The actual information of the ADSL system, on the other hand, can be transmitted for example to an MPEG decoder 6, which, in turn, is connected to a user terminal 13 having a screen 14.

By way of example, it is possible to use 10 different (discrete) classes for ADSL transmission speeds (bandwidths), as illustrated in the table below.

Class	Downstream (from the server to the user)	Upstream (from the user to the server)
1	6.144 Mbps	64 kbps
2	4.608 Mbps	64 kbps
3	3.072 Mbps	64 kbps
4	1.536 Mbps	64 kbps
5	6.2 Mbps	576 kbps
6	3.1 Mbps	384 kbps
7	1.544 Mbps	160 kbps
8	768 kbps	64 kbps
9	384 kbps	32 kbps
10	160 kbps	16 kbps

5

(Veeneman, 838-840)

As an alternative, the bandwidth of the ADSL transmission can be transmitted in a continuously variable manner.

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The invention makes use of this possibility of choosing the bandwidth in order to increase the profitability of the ADSL system for the operator.

This will now be explained in more detail with reference to Fig. 1. Fig. 1 shows a user terminal 13 with a screen 14 and an MPEG decoder 6, which is connected to an ATU-R (ADSL Terminal Unit Remote) 1. As already known from Fig. 2, the ATU-R 1 is physically connected by means of an ADSL line 12 to the central distributor 10 of the operator. An ATU-C (ADSL Terminal Unit Central) 2 connected directly to the ATU-R 1

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and a multiplexer 9 are provided in the central distributor 10. At one end, the multiplexer 9 is fed data 7 in accordance with the Internet Protocol (HTTP protocol) in the asynchronous transfer mode (ATM).

5 These data may be provided for example by a WWW server 3 of the Internet. As can be seen in Fig. 1, the central distributor 10 is furthermore connected to a network management system 4, with which it exchanges management data which are necessary for operating the
10 network.

The network management system (Telecommunications Management Network, TMN) 4 is a dedicated network which assists the operator (Service Provider) in operating the telecommunications network.
15 In other words, a TMN is a network of systems which is used for the management of telecommunications networks for the control of users. A TMN is logically separate from the network to be managed, and may also be physically separate from said network. On the other
20 hand, a TMN may also use part of the telecommunications network for its own communication.

According to the invention, the bandwidth control is effected by means of the EOC (embedded operations channel) 8 present in the ADSL system. The
25 EOC 8 is a channel which is provided for the management of the ADSL system and is thus logically assigned to the network management system 4. The EOC 8 enables the operator of the ADSL system to set the bandwidths (see the above table for example) - stipulated in the
30 service which is offered - for the so-called downstream channel (from the server to the user terminal) and also for the upstream channel (from the user terminal to the server) by means of the network management system 4. According to the invention, the bandwidth settings are
35 offered in particular via Internet or World Wide Web interfaces from the operator to the user and are then performed by the user of the system itself.

To that end, the network management system 4 is equipped with the corresponding interfaces to the World Wide Web and to the billing system 5 of the operator in order to acquire charges in accordance with the bandwidth chosen by the user.

The sequence of the method according to the invention will now be described in detail. The user of an ADSL connection 12 establishes a connection to the WWW server 3 of the operator, for example via the IP (Internet Protocol) and the HTTP protocol. After appropriate identification and authentication, the user is then offered on the screen 14 of his terminal 13 a mask for setting the bandwidth parameters of his ADSL connection. This mask may offer e.g. the classes of the table shown above. In this case, the system can automatically ascertain the maximum bandwidth prescribed by the line properties and choose it as upper limit of the bandwidths that can be selected. The user can then choose an option, i.e. he can communicate bandwidth selection data from his terminal 13 via the ADSL connection 12 to the operator, which confirms the acceptance of the chosen selection. The selection of a bandwidth which lies above the technically maximum bandwidth, detected e.g. by the network management system 4, may be blocked in this case.

At the same time, the parameters of the option desired by the user and also the user data (identification, etc.) can be transmitted to the network management system 4. The network management system 4 can then communicate the required parameters for the desired option firstly to the ATU-C 2 in the central distributor 10 of the operator. The ATU-C 2 can then forward the corresponding information to the ATU-R 1 via the EOC 8 of the ADSL connection 12, thereby ensuring synchronized setting of the modems 1,

of the ADSL connection 12 to the new parameters. In the EOC 8, the operating codes (Opcodes) 19, 1a, 1c, 1f, which are reserved for manufacturer-specific protocols (ANSI T 1.413), can be used for setting the parameters.

5 Changing the parameters for the bandwidth chosen may take effect either immediately or upon the next connection setup.

After the change in the parameters has been carried out by the network management system, the
10 associated billing information can be passed on to the billing system 5 of the operator. The billing system 5 of the operator can then charge the user the connection time to the WWW server 3 depending on the bandwidth chosen.

15 According to the invention, then, the possibilities of ADSL systems are advantageously utilized for a wide range of services. This wide range of services allows the operator of the ADSL systems to serve specific customer segments with tailored services
20 (see Fig. 3), and thereby exploit the typical willingness of the customer segments to pay for specific transmission rates. According to the prior art, the present ADSL systems are designed in such a way that the maximum speed prescribed by the line is
25 always used, irrespective of whether or not the user requires the full bandwidth. As a result of this lack of differentiation of the provision of services, the operator is passing up a sales potential, since, on the one hand, some customers would pay more and other
30 customers do not take up the service since the offered performance and price exceed the customer's requirements. The use of a differentiated provision of services can result in as much as a doubling of the attainable sales for the operator. For the manufacturer
35 of the ADSL solution provided with flexible service-dependent bandwidth control, this means, for an insignificantly higher outlay, a

significantly higher attainable market price, since this solution leads to significantly higher sales for the operator.

Patent claims

1. A method for digital data transmission with a variable bandwidth in a network which has at least one
5 server (3), a user terminal (6) and a network management system (4),
having the following steps:
- establishment of a connection between the user terminal (6) and the server (3) at least partly by
10 means of an ADSL connection (12),
- transmission (8) of bandwidth selection data from the user terminal (6) to the network management system (4) assigned to the server (3), and
- transmission of information data from the server (3)
15 to the user terminal (6) via the ADSL connection (12) and/or in the opposite direction with a bandwidth corresponding to the previously transmitted bandwidth selection data, in which case the network management system (4) communicates billing data to a billing
20 device (5), assigned to the server (3), in a manner dependent on the previously transmitted bandwidth selection data.
2. The method as claimed in claim 1,
characterized
25 in that the bandwidth selection data are transmitted via the EOC channel (8) of the ADSL connection (12).
3. The method as claimed in one of the preceding claims,
characterized
30 in that prior to the transmission (8) of the bandwidth selection data to the user terminal (6), a plurality of predetermined bandwidths which can be selected by the user are transmitted and displayed on a display device (14) of the user terminal (6).
- 35 4. The method as claimed in claim 3,

characterized

in that the maximum bandwidth of the predetermined bandwidths that can be selected is set in a manner dependent on the system capabilities.

- 5 5. The method as claimed in one of the preceding claims,

characterized

- 10 in that once the bandwidth selection data have been received, the network management system (4) transmits setting data to the ATU-C (2) of the ADSL system, which forwards the setting data to the ATU-R (1) of the ADSL system via the EOC channel (8) of the ADSL system for the purpose of synchronizing the settings.

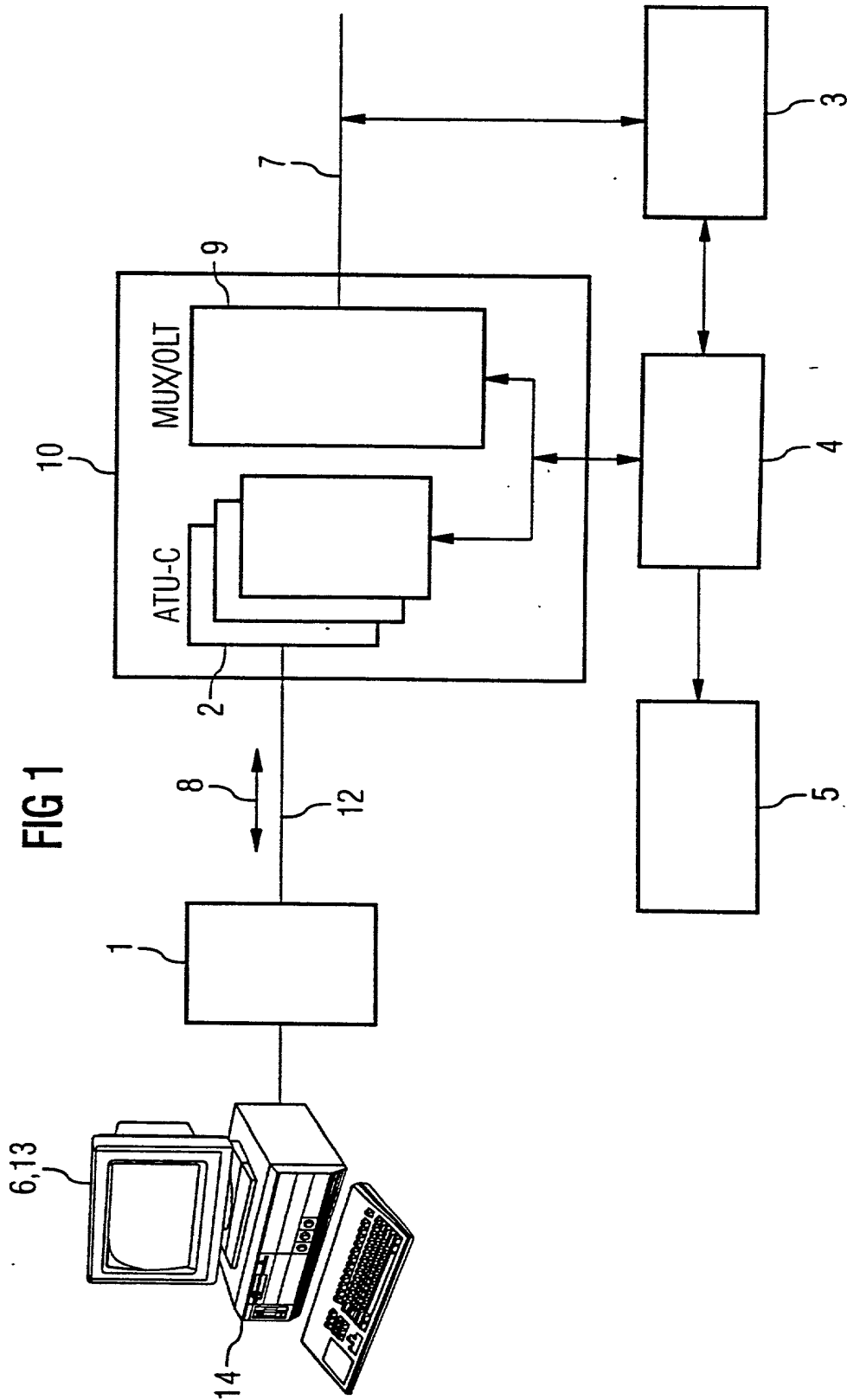
GR 98 P 1061

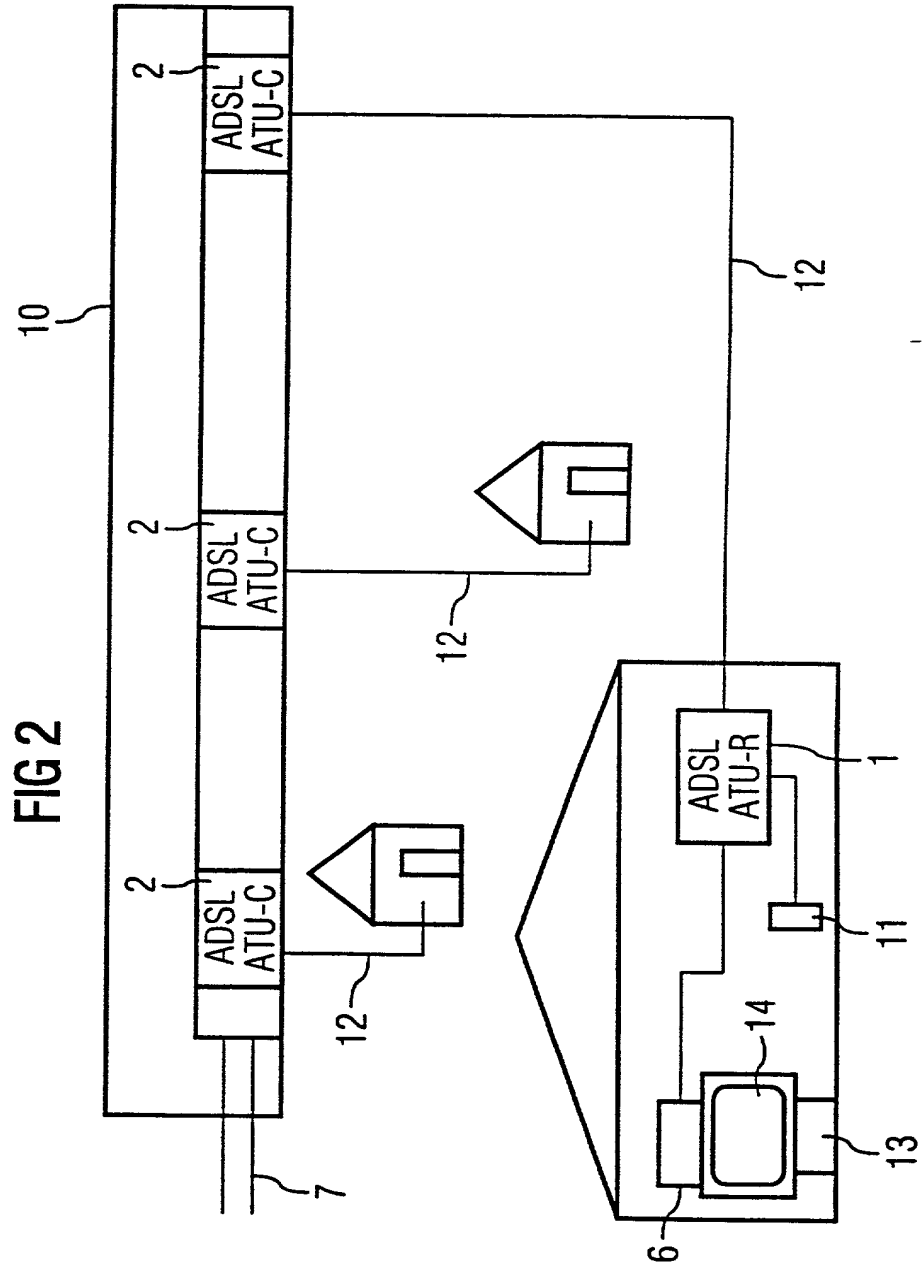
Abstract

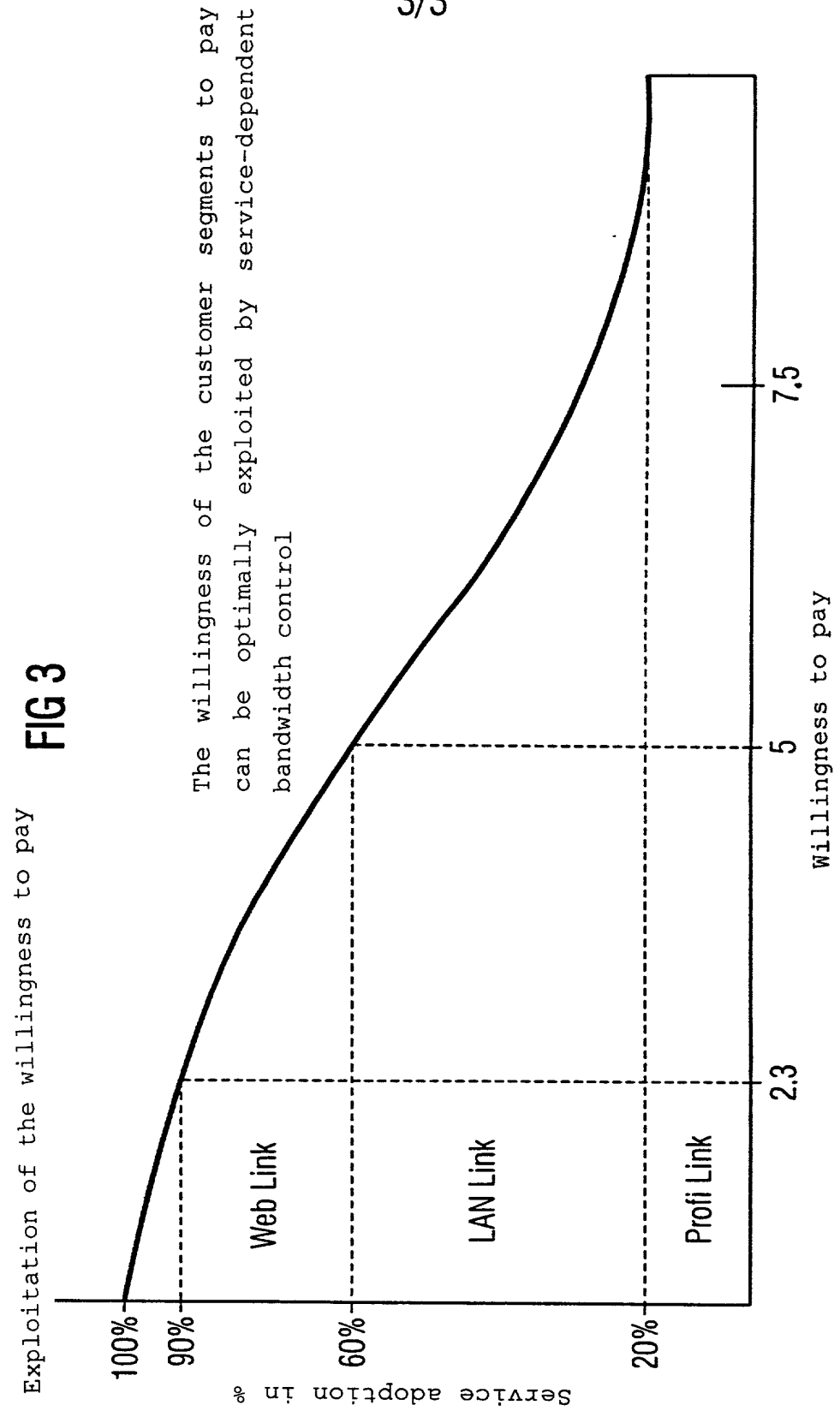
Method for digital data transmission with a variable bandwidth

The invention provides a method for digital data transmission with a variable bandwidth which can be used in a network which has at least one server 3, a user terminal 6 and a network management system (TMN) 4. In this case, firstly a connection is established between the user terminal 6 and the server 3 via an ADSL connection 12. Bandwidth selection data are then transmitted from the user terminal 6 to the network management system assigned to the server 3. Information data are then transmitted from the server 3 to the user terminal 6 via the ADSL connection 12 and/or in the opposite direction with a bandwidth corresponding to the previously transmitted bandwidth selection data. In this case, the bandwidth selection data may be transmitted in particular via the eoc channel 8 of the ADSL connection 12. The network management system 4 transmits billing data to a billing device 5, assigned to the server 3, in a manner dependent on the previously transmitted bandwidth selection data. The invention thus enables the operator of ADSL systems to have diverse possibilities for service differentiation, resulting in greater possible exploitation of the market and therefore increased profitability for the operator.

(Figure 1)







COMBINED DECLARATION AND POWER OF ATTORNEY



As a below named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD FOR DIGITALLY TRANSMITTING DATA WITH A VARIABLE BANDWIDTH

the specification of which: *(check one)*

REGULAR OR DESIGN APPLICATION

☐ is attached hereto.

☐ was filed on _____ as application Serial No. _____ and was amended on _____ (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

☒ was described and claimed in International application No. PCT/DE99/00159 filed on 22 January 1999 and as amended on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

PRIORITY CLAIM

I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

Country	Application Number	Date of Filing (day, month, year)	Priority Claimed
Germany	198 02 600.5	23 January 1998	Yes

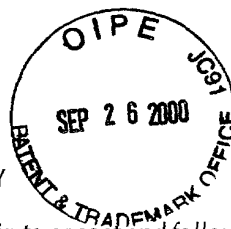
(Complete this part only if this is a continuing application.)

I hereby claim the benefit under 35 USC 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status--patented, pending, abandoned)



POWER OF ATTORNEY

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from **SIEMENS AG** as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

As a named inventor, I hereby appoint the registered patent attorneys represented by Customer No. 000466 to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, including: **Robert J. PATCH, Reg. No. 17,355, Andrew J. PATCH, Reg. No. 32,925, Robert F. HARGEST, Reg. No. 25,590, Benoît CASTEL, Reg. No. 35,041, Eric JENSEN, Reg. No. 37,855, Thomas W. PERKINS, Reg. No. 33,027, and Roland E. LONG, Jr., Reg. No. 41,949, c/o YOUNG & THOMPSON, Second Floor, 745 South 23rd Street, Arlington, Virginia 22202.**

Address all telephone calls to Young & Thompson at 703/521-2297. Telefax: 703/685-0573.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: Thomas WERNER
(given name, family name)

Inventor's signature

Thomas Werner

Date

29.8.00

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Full name of second joint inventor, if any: Claudia SCHIERBLING
(given name, family name)

Inventor's signature

Claudia Schierbling

Date

29.8.00

Residence: Nürnberg, Germany DEX

Citizenship: Germany

Post Office Address: **Coselerstrasse 13
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